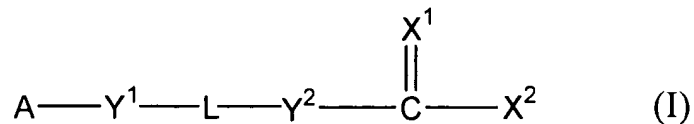


CLAIM AMENDMENTS

1. **(Previously Presented)** A method of inhibiting histone deacetylation activity in cells comprising contacting the cells with an effective amount of a compound of formula (I), thereby treating one or more disorders mediated by histone deacetylase; said compound having the following formula:



wherein

A is a cyclic moiety selected from the group consisting of aryl, or heteroaryl; the cyclic moiety being optionally substituted with alkyl, alkenyl, alkynyl, alkoxy;

each of Y^1 and Y^2 , independently, is a bond;

L is a straight C_{2-12} hydrocarbon chain containing at least one double bond, at least one triple bond, or at least one double bond and one triple bond; said hydrocarbon chain being optionally substituted with C_{1-4} alkyl, C_{2-4} alkenyl, C_{2-4} alkynyl, C_{1-4} alkoxy, hydroxyl, halo, amino, nitro, cyano, C_{3-5} cycloalkyl, 3-5 membered heterocycloalkyl, monocyclic aryl, 5-6 membered heteroaryl, C_{1-4} alkylcarbonyloxy, C_{1-4} alkyloxycarbonyl, C_{1-4} alkylcarbonyl, or formyl; and further being optionally interrupted by -O-, -N(R^e)-, -N(R^e)-C(O)-O-, -O-C(O)-N(R^e)-, -N(R^e)-C(O)-N(R^f)-, or -O-C(O)-O-; each of R^e and R^f , independently, being hydrogen, alkyl, alkenyl, alkynyl, alkoxy, hydroxylalkyl, hydroxyl, or haloalkyl;

X^1 is O or S; and

X^2 is -OR¹, -SR¹, -NR³-OR¹, -NR³-SR¹, -C(O)-OR¹, -CHR⁴-OR¹, -N=N-C(O)-N(R³)₂, or -O-CHR⁴-O-C(O)-R⁵, where each of R¹ and R², independently, is hydrogen, alkyl, hydroxylalkyl, haloalkyl, or a hydroxyl protecting group; R³ is hydrogen, alkyl, alkenyl, alkynyl, alkoxy, hydroxylalkyl, hydroxyl, haloalkyl, or an amino protecting group; R⁴ is hydrogen, alkyl, hydroxylalkyl, or haloalkyl; and R⁵ is alkyl, hydroxylalkyl, or haloalkyl;
or a salt thereof; and

determining whether the level of acetylated histones in the treated cells is higher than in untreated cells under the same conditions.

2. **(Original)** The method of claim 1, wherein X^1 is O.
3. **(Withdrawn)** The method of claim 1, wherein X^1 is S.
4. **(Original)** The method of claim 1, wherein X^2 is $-OR^1$, $-NR^3-OR^1$, $-C(O)-OR^1$, $-CHR^4-OR^1$, or $-O-CHR^4-O-C(O)-R^5$.
5. **(Original)** The method of claim 1, wherein X^2 is $-OR^1$, $-NR^3-OR^1$, $-C(O)OR^1$, or $-O-CHR^4-O-C(O)-R^5$.
6. **(Original)** The method of claim 1, wherein each of Y^1 and Y^2 , independently, is $-CH_2-$, $-O-$, $-N(R^6)-$, or a bond.
7. **(Original)** The method of claim 1, wherein each of Y^1 and Y^2 , independently, is $-CH_2-$ or a bond.
8. **(Canceled)**
9. **(Canceled)**
10. **(Original)** The method of claim 1, wherein L is an unsaturated hydrocarbon chain containing at least one double bond and no triple bond.
11. **(Withdrawn)** The method of claim 10, wherein L is an unsaturated C_{4-8} hydrocarbon chain substituted with C_{1-2} alkyl, C_{1-2} alkoxy, hydroxyl, $-NH_2$, $-NH(C_{1-2} \text{ alkyl})$, or $-N(C_{1-2} \text{ alkyl})_2$.
12. **(Original)** The method of claim 10, wherein the double bond is in trans configuration.

13. **(Withdrawn)** The method of claim 1, wherein L is an unsaturated hydrocarbon chain containing at least one double bond and one triple bond.
14. **(Withdrawn)** The method of claim 13, wherein L is an unsaturated C₄₋₈ hydrocarbon chain substituted with C₁₋₂ alkyl, C₁₋₂ alkoxy, hydroxyl, -NH₂, -NH(C₁₋₂ alkyl), or -N(C₁₋₂ alkyl)₂.
15. **(Withdrawn)** The method of claim 13, wherein the double bond is in trans configuration.
16. **(Canceled)**
17. **(Previously Presented)** The method of claim 1, wherein A is phenyl.
18. **(Previously Presented)** The method of claim 1, wherein A is phenyl optionally substituted with alkyl alkenyl, alkynyl, or alkoxy.
19. **(Canceled)**
20. **(Canceled)**
21. **(Withdrawn)** The method of claim 18, wherein L is an unsaturated C₄₋₈ hydrocarbon chain containing at least one double bond and no triple bond, said unsaturated hydrocarbon chain optionally substituted with C₁₋₂ alkyl, C₁₋₂ alkoxy, hydroxyl, -NH₂, -NH(C₁₋₂ alkyl), or -N(C₁₋₂ alkyl)₂.
22. **(Withdrawn)** The method of claim 21, wherein X¹ is O; X² is -OR¹, -NR³-OR¹, -C(O)OR¹, or -O-CHR⁴-O-C(O)-R⁵; and each of Y¹ and Y², independently, is -CH₂-, -O-, -N(R⁶)-, or a bond.
23. **(Withdrawn)** The method of claim 18, wherein L is an unsaturated hydrocarbon chain containing at least one double bond and one triple bond, optionally substituted with C₁₋₂ alkyl, C₁₋₂ alkoxy, hydroxyl, -NH₂, -NH(C₁₋₂ alkyl), or -N(C₁₋₂ alkyl)₂.

24. **(Withdrawn)** The method of claim 23, wherein X^1 is O; X^2 is $-OR^1$, $-NR^3-OR^1$, $-C(O)OR^1$, or $-O-CHR^4-O-C(O)-R^5$; and each of Y^1 and Y^2 , independently, is $-CH_2-$, $-O-$, $-N(R^c)-$, or a bond.

Claims 25-32 **(Canceled)**

33. **(Withdrawn)** The method of claim 32, wherein A contains only double bonds.

34. **(Withdrawn)** The method of claim 33, wherein L is a saturated C_{3-8} hydrocarbon chain optionally substituted with C_{1-2} alkyl, C_{1-2} alkoxy, hydroxyl, $-NH_2$, $-NH(C_{1-2} \text{ alkyl})$, or $-N(C_{1-2} \text{ alkyl})_2$.

35. **(Withdrawn)** The method of claim 34, wherein X^1 is O; X^2 is $-OR^1$, $-NR^3-OR^1$, $-C(O)OR^1$, or $-O-CHR^4-O-C(O)-R^5$; and each of Y^1 and Y^2 , independently, is $-CH_2-$, $-O-$, $-N(R^c)-$, or a bond.

36. **(Withdrawn)** The method of claim 33, wherein L is an unsaturated C_{4-8} hydrocarbon chain containing only double bonds, said unsaturated hydrocarbon chain optionally being substituted with C_{1-2} alkyl, C_{1-2} alkoxy, hydroxyl, $-NH_2$, $-NH(C_{1-2} \text{ alkyl})$, or $-N(C_{1-2} \text{ alkyl})_2$.

37. **(Withdrawn)** The method of claim 36, wherein X^1 is O; X^2 is $-OR^1$, $-NR^3-OR^1$, $-C(O)OR^1$, or $-O-CHR^4-O-C(O)-R^5$; and each of Y^1 and Y^2 , independently, is $-CH_2-$, $-O-$, $-N(R^c)-$, or a bond.

38. **(Withdrawn)** The method of claim 33, wherein L is an unsaturated C_{4-8} hydrocarbon chain containing at least one double bond and one triple bond, said unsaturated hydrocarbon chain optionally being substituted with C_{1-2} alkyl, C_{1-2} alkoxy, hydroxyl, $-NH_2$, $-NH(C_{1-2} \text{ alkyl})$, or $-N(C_{1-2} \text{ alkyl})_2$.

39. **(Withdrawn)** The method of claim 38, wherein X^1 is O; X^2 is $-OR^1$, $-NR^3-OR^1$, $-C(O)OR^1$, or $-O-CHR^4-O-C(O)-R^5$; and each of Y^1 and Y^2 , independently, is $-CH_2-$, $-O-$, $-N(R^c)-$, or a bond.

40. **(Currently Amended)** The method of claim 1, wherein said compound is 5-phenyl-2,4-pentadienoic acid, 3-methyl-5-phenyl-2,4-pentadienoic acid, 4-methyl-5-phenyl-2,4-pentadienoic acid, 4-chloro-5-phenyl-2,4-pentadienoic acid, 5-(4-dimethylaminophenyl)-2,4-pentadienoic acid, 5-phenyl-2-en-4-yn-pentanoic acid, 6-phenyl-3,5-hexadienoic acid, 7-phenyl-2,4,6-heptatrienoic acid, 8-phenyl-3,5,7-octatrienoic acid, cinnamoylhydroxamic acid, methylcinnamoylhydroxamic acid, 5-phenyl-2,4-pentadienoylhydroxamic acid, N-methyl-5-phenyl-2,4-pentadienoylhydroxamic acid, 3-methyl-5-phenyl-2,4-pentadienoylhydroxamic acid, 4-methyl-5-phenyl-2,4-pentadienoylhydroxamic acid, 4-chloro-5-phenyl-2,4-pentadienoylhydroxamic acid, 5-(4-dimethylaminophenyl)-2,4-pentadienoylhydroxamic acid, 5-phenyl-2-en-4-yn-pentanoylhydroxamic acid, or N-methyl-6-phenyl-3,5-hexadienoylhydroxamic acid.

41. **(Previously Presented)** The method of claim 1, wherein said compound is 5-phenyl-2,4-pentadienoic acid, 8-phenyl-3,5,7-octatrienoic acid, 5-phenyl-2,4-pentadienoylhydroxamic acid, or 7-phenyl-2,4,6-hepta-trienoylhydroxamic acid.

42. **(Original)** The method of claim 1, wherein the cells are treated with a compound of formula (I) in vivo.

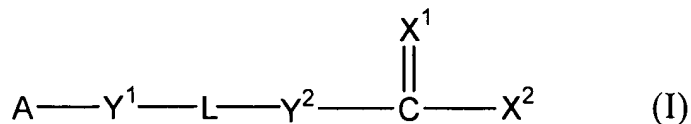
43. **(Withdrawn)** The method of claim 1, wherein the cells are treated with a compound of formula (I) in vitro.

44. **(Original)** The method of claim 1, wherein the cells being treated are cancerous.

45. **(Canceled)**

46. **(Previously Presented)** The method of claim 1, wherein the disorder is cancer.

47. **(Withdrawn)** A method of inhibiting histone deacetylase in cells comprising contacting the cells with an effective amount of a compound of formula (I):



wherein

A is phenyl optionally substituted with alkyl alkenyl, alkynyl, alkoxy, hydroxyl, hydroxylalkyl, halo, haloalkyl, or amino;

each of Y^1 and Y^2 , independently, is $-\text{CH}_2-$, $-\text{O}-$, $-\text{S}-$, $-\text{N}(\text{R}^e)-$, or a bond; where R^e is hydrogen, alkyl, alkenyl, alkynyl, alkoxy, hydroxylalkyl, hydroxyl, or haloalkyl;

L is a straight C_{2-12} hydrocarbon chain optionally containing at least one double bond, at least one triple bond, or at least one double bond and one triple bond; said hydrocarbon chain being optionally substituted with C_{1-4} alkyl, C_{2-4} alkenyl, C_{2-4} alkynyl, C_{1-4} alkoxy, hydroxyl, halo, amino, nitro, cyano, C_{3-5} cycloalkyl, 3-5 membered heterocycloalkyl, monocyclic aryl, 5-6 membered heteroaryl, C_{1-4} alkylcarbonyloxy, C_{1-4} alkyloxycarbonyl, C_{1-4} alkylcarbonyl, or formyl; and further being optionally interrupted by $-\text{O}-$, $-\text{N}(\text{R}^e)-$, $-\text{N}(\text{R}^e)-\text{C}(\text{O})-\text{O}-$, $-\text{O}-\text{C}(\text{O})-\text{N}(\text{R}^e)-$, $-\text{N}(\text{R}^e)-\text{C}(\text{O})-\text{N}(\text{R}^f)-$, or $-\text{O}-\text{C}(\text{O})-\text{O}-$; each of R^e and R^f , independently, being hydrogen, alkyl, alkenyl, alkynyl, alkoxy, hydroxylalkyl, hydroxyl, or haloalkyl;

X^1 is O or S; and

X^2 is $-\text{OR}^1$, $-\text{SR}^1$, $-\text{NR}^3-\text{OR}^1$, $-\text{NR}^3-\text{SR}^1$, $-\text{C}(\text{O})-\text{OR}^1$, $-\text{CHR}^4-\text{OR}^1$, $-\text{N}=\text{N}-\text{C}(\text{O})-\text{N}(\text{R}^3)_2$, or $-\text{O}-\text{CHR}^4-\text{O}-\text{C}(\text{O})-\text{R}^5$; where each of R^1 and R^2 , independently, is hydrogen, alkyl, hydroxylalkyl, haloalkyl, or a hydroxyl protecting group; R^3 is hydrogen, alkyl, alkenyl, alkynyl, alkoxy, hydroxylalkyl, hydroxyl, haloalkyl, or an amino protecting group; R^4 is hydrogen, alkyl, hydroxylalkyl, or haloalkyl; R^5 is alkyl, hydroxylalkyl, or haloalkyl; and provided that when L is a C_{2-3} hydrocarbon containing no double bonds and X^2 is $-\text{OR}^1$, Y^1 is not a bond and Y^2 is not a bond;

or a salt thereof; and

determining whether the level of acetylated histones in the treated cells is higher than in untreated cells under the same conditions.

48. **(Withdrawn)** The method of claim 47, wherein L is a saturated C₃₋₈ hydrocarbon chain substituted with C₁₋₂ alkyl, C₁₋₂ alkoxy, hydroxyl, -NH₂, -NH(C₁₋₂ alkyl), or -N(C₁₋₂ alkyl)₂.

49. **(Withdrawn)** The method of claim 48, wherein X¹ is O; X² is -OR¹, -NR³-OR¹, -C(O)OR¹, or -O-CHR⁴-O-C(O)-R⁵; and each of Y¹ and Y², independently, is -CH₂-, -O-, -N(R^a)-, or a bond.

50. **(Withdrawn)** The method of claim 47, wherein L is an unsaturated C₄₋₈ hydrocarbon chain containing only double bonds, said unsaturated hydrocarbon chain optionally substituted with C₁₋₂ alkyl, C₁₋₂ alkoxy, hydroxyl, -NH₂, -NH(C₁₋₂ alkyl), or -N(C₁₋₂ alkyl)₂.

51. **(Withdrawn)** The method of claim 50, wherein X¹ is O; X² is -OR¹, -NR³-OR¹, -C(O)OR¹, or -O-CHR⁴-O-C(O)-R⁵; and each of Y¹ and Y², independently, is -CH₂-, -O-, -N(R^c)-, or a bond.

52. **(Withdrawn)** The method of claim 47, wherein L is an unsaturated hydrocarbon chain containing at least one double bond and one triple bond, optionally substituted with C₁₋₂ alkyl, C₁₋₂ alkoxy, hydroxyl, -NH₂, -NH(C₁₋₂ alkyl), or -N(C₁₋₂ alkyl)₂.

53. **(Withdrawn)** The method of claim 53, wherein X¹ is O; X² is -OR¹, -NR³-OR¹, -C(O)OR¹, or -O-CHR⁴-O-C(O)-R⁵; and each of Y¹ and Y², independently, is -CH₂-, -O-, -N(R^c)-, or a bond.

Claims 54-66 **(Canceled)**

67. **(Previously Presented)** The method of claim 40, wherein said compound is 5-phenyl-2,4-pentadienoic acid.

68. **(Previously Presented)** The method of claim 40, wherein said compound is 3-methyl-5-phenyl-2,4-pentadienoic acid.

69. **(Previously Presented)** The method of claim 40, wherein said compound is 4-methyl-5-phenyl-2,4-pentadienoic acid.

70. **(Previously Presented)** The method of claim 40, wherein said compound is 4-chloro-5-phenyl-2,4-pentadienoic acid.

71. **(Withdrawn)** The method of claim 40, wherein said compound is 5-(4-dimethylaminophenyl)-2,4-pentadienoic acid.

72. **(Previously Presented)** The method of claim 40, wherein said compound is 5-phenyl-2-en-4-yn-pentanoic acid.

73. **(Previously Presented)** The method of claim 40, wherein said compound is 6-phenyl-3,5-hexadienoic acid.

74. **(Previously Presented)** The method of claim 40, wherein said compound is 7-phenyl-2,4,6-heptatrienoic acid.

75. **(Previously Presented)** The method of claim 40, wherein said compound is 8-phenyl-3,5,7-octatrienoic acid.

76. **(Previously Presented)** The method of claim 40, wherein said compound is cinnamoylhydroxamic acid.

77. **(Previously Presented)** The method of claim 40, wherein said compound is methyl-cinnamoylhydroxamic acid.

78. **(Previously Presented)** The method of claim 40, wherein said compound is 5-phenyl-2,4-pentadienoylhydroxamic acid.

79. **(Previously Presented)** The method of claim 40, wherein said compound is N-methyl-5-phenyl-2,4-pentadienoylhydroxamic acid.

80. **(Previously Presented)** The method of claim 40, wherein said compound is 3-methyl-5-phenyl-2,4-pentadienoylhydroxamic acid.

81. **(Previously Presented)** The method of claim 40, wherein said compound is 4-methyl-5-phenyl-2,4-pentadienoyl hydroxamic acid.

82. **(Previously Presented)** The method of claim 40, wherein said compound is 4-chloro-5-phenyl-2,4-pentadienoylhydroxamic acid.

83. **(Withdrawn)** The method of claim 40, wherein said compound is 5-(4-dimethylaminophenyl)-2,4-pentadienoylhydroxamic acid.

84. **(Previously Presented)** The method of claim 40, wherein said compound is 5-phenyl-2-en-4-yn-pentanoylhydroxamic acid.

85. **(Previously Presented)** The method of claim 40, wherein said compound is N-methyl-6-phenyl-3,5-hexadienoylhydroxamic acid.